

## Grounding Nonexistence

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Contingent negative existentials give rise to a notorious paradox. I formulate a version in terms of metaphysical grounding: nonexistence can't be fundamental, but nothing can ground it. I then argue for a new solution, expanding on work by Kit Fine. The key idea is that negative existentials are contingently zero-grounded—that is to say, they are grounded, but not by anything, and only in the right conditions. If this is correct, it follows that grounding cannot be an internal relation, and that no complete account of reality can be purely fundamental.

### Introduction

We are the only creatures who think and talk with ‘not’ and its equivalents (Horn 2001: xiii, Altmann 1967: 353–55); a grasp of negation is as distinctively human as walking upright. So it is remarkable that negation—something we naturally master within a year of our baby steps (Horn 2001: 161)—has struck so many grown-up philosophers as delusive and dispensable. In the ancient West, Parmenides ‘sought to banish all negative thought’ from philosophy (Horn 2001: 50). Russell would later declare: ‘The world can be described without the word “not”’ (1948: 520). Negation is at best a nifty shorthand, on this view, not a way to get at fundamental reality.

But like outrunning one’s shadow, metaphysics without negation is tricky business. One problem is that, according to some writers, like the ancient Indian philosopher Vātsyāyana, the positive depends on the negative: ‘That which is not is the means of apprehending that which is’ (as cited by Randle 1930: 331, Horn 2001: 86). A simpler point is that we can’t fully describe the world unless we give both its positive contents and negative limits: we need ‘Here’s this!’ *and* ‘That’s it!’

We have ourselves a paradox—an age-old, cross-cultural, metaphysical dilemma. We can’t live with the negative, and we can’t live without it. But what *exactly* is the problem? No doubt there are several tangled up here, but I won’t try to separate them out. Instead I want to take on a simple, central form of the puzzle, which I will pose in the idiom of metaphysical grounding, with a focus

on contingent negative existentials like [There are no flying pigs] and [There are no ghosts].<sup>1</sup>

(Why *grounding*? Because it's flexible and familiar (Schaffer 2009, Fine 2012, Bennett 2017).

Why negative *existentials*? Because facts with humdrum negative predicates, like 'dead' or 'non-toxic', raise presupposition problems.<sup>2</sup> Why not a singular fact, like [Pegasus doesn't exist] or [There is no such detective as Sherlock Holmes]? To avoid the referential riddles of empty names (Toms 1972: 7, Braun 1993). Why *contingent* facts? Because necessary nonexistence, as in [There are no trilateral squares], might be grounded anti-climactically in essences or laws (Rosen 2010: 119–120).)

Here is our spin on the paradox. *What grounds the fact that there aren't any ghosts?* On the one hand, it is natural to think that this fact must be grounded. There is something to Russell's hunch that the negative can't be fundamental. But it is also natural to think that nothing could ground the nonexistence of ghosts. After all, there are no fundamental negative facts there to ground it, and no positive facts could ever guarantee it. This is so because any positive picture of the world, however unspooky, is consistent with the possibility of there being *further things*—and those things could very well be diaphanous particulars, out there haunting houses and saying 'Boo!'. (What if a positive fact *does* seem to rule out there being further things? Then it isn't really positive!)

Our dilemma is that we apparently can't have both: (1) that nonexistence must be grounded, and (2) that nothing can ground it. I begin by presenting the full arguments for these claims (§§1–2), before I show how they might be—surprisingly—consistent (§3). Nonexistence could be grounded

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<sup>1</sup> Let's get this out of the way. Square brackets are used to denote facts: true structured propositions. I assume that the positive/negative distinction is metaphysical (Russell 1918: 78-9, Beall 2000, Molnar 2000: 72ff, Chalmers 2012: 151, Griffith 2015: fn. 11). And for the closest paradox to mine, see Molnar (2000), whose puzzle is to figure out whether the following ideas could be 'co-tenable': (1) The world is everything that exists; (2) Everything that exists is positive; (3) Some negative claims about the world are true; (4) Every true claim about the world is made true by something that exists. See Parsons 2006 for some criticism of Molnar's setup.

<sup>2</sup> Negative existentials are also notable for their prominence in recent literature. 'No issue is more hotly contested in truthmaker theory than the problem of negative truths, particularly those truths that are about what does not exist' (Asay and Baron 2013: 230).

precisely in the sense that that is grounded in nothing. This is possible because ‘grounded in nothing’—if we can trust Fine (2012)—is ambiguous. It could mean that a fact is *ungrounded* (i.e. fundamental, not grounded), or it could mean that the fact is *zero-grounded*: grounded in zero-many things, as the empty set contains zero-many elements. My claim is that [There are no ghosts] is zero-grounded. I conclude with implications for the theory of grounding and for the negative more generally. The main consequences are that grounding cannot be an internal relation (§4), and that purely fundamental accounts of the world can’t be complete (§5).

In other contexts, zero-grounding doesn’t have such radical upshots. That is because zero-grounding is normally thought to hold only *necessarily*. Since the nonexistence of ghosts is contingent, it can be grounded only contingently. So I argue that [There are no ghosts] is contingently zero-grounded—and this combination is what makes things radical.

To be sure, contingent zero-grounding sounds odd at first, a combination of two controversial concepts. But it is the only way to reconcile our two intuitions about nonexistence: that it’s grounded, and that nothing can ground it. Moreover, even if zero-grounding and contingent grounding are controversial, they aren’t gimmicks. Contingent grounding has been used in accounts of universal generalizations (Barceló Aspeitia 2015, Skiles 2015), normative reasons (Dancy 1981, 2004, Bader 2016), and the mind-body problem (Leuenberger 2008).<sup>3</sup> Zero-grounding features in accounts of the grounds of mathematics (Donaldson 2017), of identity (Schumener 2017: §3.3), and of non-factive grounding facts (Litland 2017). Anyone drawn to these applications has a reason to take contingent zero-grounding seriously. The same goes for anyone—philosophers, linguists, whoever—seeking clues to the elusive nature of the negative.

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<sup>3</sup> See also Briggs 2012 and Barceló Aspeitia 2015 on contingent truthmaking.

## 1. Nonexistence is Grounded

Our paradox has the shape of a dilemma. On the one hand, [There are no ghosts] needs to be grounded; on the other, nothing seems fit to be the ground. To most philosophers, these claims sound flatly inconsistent, and so most accounts of negative existential facts give up one claim or the other. I want to argue that this is move is seriously costly; there are good arguments for both claims. Let's start with the arguments for thinking that nonexistence must be grounded.

Intuitively, negative facts are not fundamental—or to put the point a bit more romantically: ‘There is implanted in the human breast an almost unquenchable desire to find some way of avoiding the admission that negative facts are as ultimate as those that are positive’ (Russell 1956: 287).<sup>4</sup> I can think of two ways to back up this majestic intuition. The first is that nonexistence facts are ‘no extra work’.

If [There are no ghosts] is fundamental, then it can't be grounded in or generated by other features of the world. That means that on the day of creation, God had two jobs to do: first, bring about the existence of positive things like people and planets, perhaps while fleshing them out with positive properties like shape and colour, and second, bring about the nonexistence of ghosts. But how could that be a second *job*? Taking a positively fleshed-out world and ‘making’ it ghostless doesn't require any ontological work—just don't add ghosts! Ghostlessness and the rest of nonexistence ought to come for free given the positive facts, just as  $[p \ \& \ q]$  is free given  $[p]$  and  $[q]$ .<sup>5</sup> Ghostlessness is ‘nothing over and above’ the positive facts about the non-ghosts, or as Armstrong

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<sup>4</sup> Doubts about fundamental negativity are all over the history of philosophy. For one early example, see Saint Thomas Aquinas in his commentary on Aristotle's *De Interpretatione*: ‘With respect to the thing, the affirmative enunciation, which signifies to be, is prior to the negative, which signifies not to be, as the having of something is naturally prior to the privation of it’ (book 1, lesson 13, in Oesterle 1962: 64; cited in Horn 2001: 47).

<sup>5</sup> I am not the first to invoke the ‘What did God have to do?’ heuristic in a paper on negative facts—see e.g. Saenz 2014: 92–3 and Parsons 2006: 592–3.

(2010: 80) puts it, “No more” is not something more!

On to the second reason why nonexistence had better be grounded: recombination. Since fundamental facts don’t depend on one another, for any combination of the fundamental facts we should expect to find a possible world where those are exactly the fundamental facts—fundamental facts should be *freely modally recombinable* (Armstrong 1997: 196, Bennett 2011a: fn. 6). So if [There are no ghosts] is fundamental, that means that ghosts’ nonexistence can be recombined with the fundamental *positive* facts; so, there must be a possible world  $w^*$  where the positive facts are the same, but where ghostlessness is missing. But this is absurd: in order for  $w^*$  to be positively like our world, it would have to be ghostless. But for  $w^*$  to lack ghostlessness, it would have to contain ghosts! And of course, we can’t abide by any combination that includes positive facts like [Casper is a ghost] along with [There are no ghosts]. Taken together, Free Modal Recombination and No Extra Work seem clear and convincing.<sup>6</sup>

## 2. Nothing Grounds Nonexistence<sup>7</sup>

If [There are no ghosts] is grounded, what grounds it? Some say that the ground involves facts about particular ordinary entities—either positive facts like [Ginger is human] or negative ones like [The Eiffel Tower is not a ghost]. Others say that the ground is a rather hefty fact about the whole world (Cheyne and Pigden 2006). Some even think the ground includes both.<sup>8</sup>

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<sup>6</sup> One objection to recombination is that it entails that fundamental properties can be had in isolation. For example, if [ $Q_1$  has a mass  $m$ ] and [ $Q_1$  has shape  $s$ ] are fundamental, recombination commits us to thinking that there is an odd world where  $Q_1$  has a mass but no shape (or any other fundamental properties). This is ‘the problem of free mass’ (introduced as an argument against the bundle theory; see Armstrong 1997: 99, Macdonald 1998). The best response, due to Schaffer 2003, is that nearly all plausible ontologies are committed to free masses—so how bad could they be?

<sup>7</sup> The arguments in this section were greatly improved by perceptive and incisive comments from an anonymous referee at *Inquiry*. My warmest thanks.

<sup>8</sup> For example, Kit Fine’s (2012) view is that [There are no ghosts] is grounded in [a is not a

But—intuition number two—none of these is fit to ground nonexistence. You can't get nothing from something. This one is also pretty appealing from the start:

Intuitively, what makes a sentence true such as 'There are no Fs' is a lack of Fs...it is just confused to think that we must account for a lack by postulating the existence of something else.... Such truths are true because certain things don't exist, and it is wrong to try and understand this in terms of the existence of something new. (Melia 2005: 69)<sup>9</sup>

Can we say anything to back up this intuition? I know of three arguments.

One (rough) argument has to do with *subject matter*. The idea is that [There are no ghosts] can't be even partially grounded in any positive fact about a particular entity, like [Ginger is a human], because [There are no ghosts] is just about ghosts (if anything), not people and their species (Cartwright 1960). Ginger's being human, like any positive property of hers, is a 'new' subject matter; and grounding explanations, like any good explanations, aren't supposed to change the subject.

This argument is meant to generalise to other possible grounds of nonexistence. If the grounds are supposed to be negative facts, like [Ginger is not a ghost], these won't mention new properties. But they will still involve irrelevant particulars like Ginger, so they still change the subject from the absence of ghosts. Nor would things be any better if we grounded nonexistence in a massive positive fact, like [ $w$  is F], where  $w$  is the world and Fness is a maximally specific positive property that accounts for the positive properties of  $w$ -inhabitants. If anything, [ $w$  is F] just changes the subject even more, since the world includes Ginger and the other non-ghosts.<sup>10</sup> Again, good

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ghost], [b is not a ghost], etc., where a, b, etc. are all of the things, plus the totality fact: [All things are identical either to a or to b or...]. More on the totality fact soon.

<sup>9</sup> See also Raju (1941: 585): '[A negative judgment] cannot be true if there is nothing in reality corresponding to its Not, and if there is something corresponding to its Not the judgment cannot be negative'.

<sup>10</sup> For a related point, about 'irrelevance', see Armstrong on truthmakers for 'There are no unicorns' and 'There are no centaurs': 'I do not deny that the whole world is a truthmaker for these truths. But is it a *minimal* truthmaker? I don't think so. Huge swathes of the whole world are really

metaphysical explanations don't change the subject. (They might home in on a more specific or basic aspect of the subject matter, but sharpening focus is not the same as shifting it.) Whether we use small facts or big ones, the problem remains: you can't get nothing from something.

This argument is suggestive, but not decisive. Someone could resist by saying:

Maybe [Ginger is human] and [Ginger is not a ghost] have a different subject matter than ghostlessness. But they aren't *irrelevant* (*pace* Loss 2017: §3). If Ginger is human, she can't be a ghost. If she is a ghost, ghosts exist.<sup>11</sup> So there is a rationale for saying that Ginger's being human, and her not being a ghost, could be part of the ground for [There are no ghosts].

This is a good challenge. We need something more careful.

So here is a second line of argument, which I endorse. The facts that are generally taken to ground nonexistence are relevant to it, we can grant, but not as grounds. They play a different role. The fact that Ginger is a human (or non-ghost) isn't part of what *makes* the world ghostless; it merely represents a *failure to prevent* it from being ghostless. (Forgive the triple negative.) There is an analogy here with causation. If my plant dies from lack of water, we wouldn't say that its death was caused by anyone and everyone who could have intervened. The Queen of England, though she could have swooped in to water my plant, didn't cause it to die. She merely failed to prevent its death (Sartorio 2004). That is how I think of Ginger and ghostlessness. Her being human isn't even part of the ground for [There are no ghosts]. It merely fails to ground [There are ghosts], and so fails to rule out [There are no ghosts].<sup>12</sup>

Some might still be skeptical. Isn't Ginger's being human, rather than ghostly, in some sense 'counting in favor' of the world's being ghostless? Isn't it a bit precious to say that this favoring falls short of grounding? If the skeptics are intent on finding grounds for nonexistence, they admittedly

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irrelevant to the non-existence of these animals' (2010: 85, emphasis original).

<sup>11</sup> But see Yablo (ms.) for an argument that negative existentials are about all the positive things.

<sup>12</sup> As I will later put it, [Ginger is not a ghost] is the absence of a 'disabling condition' (§5).

have a decent case for saying that [Ginger is human] is up to the job.

I think this skeptical view is harder to maintain, however, when we look at a fuller range of examples, since there can be cases where nothing seems to ‘count in favor’ of a negative existential. One example is a perfectly empty world, totally devoid of objects.<sup>13</sup> It’s true here that there are no ghosts—but there are no positive facts, or even negative facts about positive things, to favor that negative existential. There are also other cases. Imagine a tiny world with three particles,  $\alpha$ ,  $\beta$ , and  $\gamma$ , where the following negative existential contingently holds: [There are no more than three particles]. Does any property of those particles ‘count in favor’ of the negative existential? I don’t think so. If anything, the positive facts [ $\alpha$  is a particle] and [There are at least three particles] count *against* the negative existential. Even if [There are no ghosts] can be grounded in particular facts, like [Ginger is not a ghost], this strategy doesn’t generalise.

The second argument, then, has some force. We can grant that Ginger’s being a non-ghostly human is relevant to ghostlessness without awarding it the status of a ground. It represents instead a missed opportunity to prevent ghostlessness, a lack of disruption rather than the presence of a generator.

My last argument against there being grounds of nonexistence is that it is hard to find a ground that can *necessitate* it, and it is widely held that grounds must necessitate the truth of what they ground—a principle known as:

**Necessitation**

If a set of facts S grounds B, then it is necessary that if all the facts in S are the case, so is B.<sup>14</sup>

I myself don’t accept this principle. But those who do, I think, are going to have trouble finding

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<sup>13</sup> Saenz (2014) discusses such a case at length. (There is some debate over whether an empty world is possible. Baldwin (1996) argues that it is; Coggins (2010, Chapter 4) argues that it isn’t.)

<sup>14</sup> Necessitation is the ‘default view among proponents of grounding’ (Bliss and Trogdon 2014: §5), endorsed by Correia 2005, Witmer et al. 2005, deRosset 2010, Rosen 2010, Audi 2012a, 2012b, Trogdon 2013, and Dasgupta 2014.



grounds for nonexistence.

Consider what happens if we try to ground [There are no ghosts] in the individual-level facts about the (non-ghostly) particulars: the *XXs* (which include all of the actual things, none of which are ghosts). Among these individual-level facts will be facts like [Ginger is a human], or like [The Eiffel Tower is not a ghost]. But no matter how many such facts we list out, they won't rule out the possibility of ghosts. That is because it is consistent with any such set of facts that there be a *further object y*, not among the *XXs*, such that *y* is a ghost.

I know of two ways to respond to this argument. One is to appeal to *Necessitism*, the controversial view that there can be no contingent beings, no change in what exists from world to world: necessarily, everything exists necessarily.<sup>15</sup> Given Necessitism, the facts about individuals among the *XXs* will necessitate [There are no ghosts], since there couldn't possibly be any other individuals—and so no other potential ghosts!

I want to grant that Necessitists have a decent grounding story for [There are no ghosts]. To some extent, they simply get out of the puzzle, and that is a mark in favor of their view. But they have trouble grounding a certain bigger fact: *the totality fact*, which says that there are no more things besides the ones there actually are. It too is a negative existential: [There exists no *y* that isn't among the *XXs*], where the *XXs* are all of the actual things. What are the grounds for this fact? What facts ground the fact that there aren't any more things? Necessitists can point to some relevant necessitating facts—all facts of the form [a is among the *XXs*]. But this answer doesn't seem like a good *explanation*. We are asking *why* there aren't further things besides these, the ones there are. It is not satisfying to be told: 'Well, none of *these* is a further thing!' The effectiveness of this answer presupposes the very totality fact that we are trying to explain.

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<sup>15</sup> For recent defenses of Necessitism, see Williamson 2013 and Goodman 2016. See also Linsky and Zalta 1994, 1996 (whose view is similar, but who officially believe in contingent objects).

Now we move to the standard way of finding necessitating grounds of nonexistence, which is to go beyond facts about individuals and appeal directly to a big fact, like the totality fact, that concerns the state of the whole world. The hope is that the big fact will (maybe with help from the individual-level facts) rule out the possibility of there being further things.

The same song is played in different keys. Cheyne and Pigden (2006) would ground [There are no ghosts] in a massive fact that they would ‘roughly characterize’ as *the world as it actually is*. Schaffer (2010) would ground [There are no ghosts] in the world’s (contingently) being the only fundamental thing. Cameron (2008) would ground it in the existence of the world, which he takes to be *essentially* a world, and so *essentially* not part of a bigger world with ghosts in it. Armstrong (1997, 2004, 2010) and Fine (2012) would partially ground it in a kind of totality fact, a fact saying that all things are among the XXs (where the XXs are all of the actual things).<sup>16</sup>

But these proposals, despite their differences, confront the same Big Dilemma: is the ‘big fact’ positive or negative? If positive, it can’t necessitate nonexistence. If negative, even partly, then it will *itself* amount to a negative existential that holds without grounds. We should slow down a bit to work through this Dilemma in detail.

Start with Cheyne and Pigden, whose ‘big fact’ is clearly meant to be positive. (Their title: ‘Negative Truths from Positive Facts’!) Why think the big positive fact can necessitate the nonexistence of, say, unicorns? Because there can’t be unicorns without a change in *how the world actually is*, which is precisely what the big fact is meant to capture. They write:

the (first order) way the universe actually is (a very large and complex fact, but a positive fact nonetheless) makes it true that there are no unicorns. For (on the assumption that there are no unicorns) the universe would have to be a different way for unicorns to exist...the existence of the actual configuration of the universe necessitates or makes true the proposition that there are no unicorns. (Cheyne and Pigden 2006: 257)

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<sup>16</sup> Armstrong is a truthmaker theorist, but we can imagine a ground-theoretic version of his view. (Same for Cameron, Cheyne, and Pigden.) I also ignore that Armstrong’s totality facts (or ‘totality states of affairs’) totalise the first-order states of affairs, not the objects (1997: 134, 198; 2010: 78).

The problem with this view is simple and familiar (Parsons 2006: 594, Armstrong 2006: 267). Let ‘P’ denote the big, actually comprehensive positive fact. P is intuitively consistent with the presence of *further* positive facts, which might involve unicorns—just imagine adding to our world *w* another chunk of spacetime populated by one-horned equines. This new world *w*\* would differ from ours in *what the positive facts are*. But the *big actual positive fact*, P, would be present and unchanged in *w*\*. It would just fail to be the biggest positive fact. This crucial ambiguity is concealed by Cheyne and Pigden’s phrase ‘how the world actually is’. If ‘how the world actually is’ is just P, then it’s positive, but it can’t necessitate [There are no unicorns]. If ‘how the world actually is’ includes the fact that P exhausts the positive facts, then it can necessitate, but it’s no longer purely positive. Unlike P itself, it is a negative fact that there are no positives beyond P.

The second option is that the big fact is negative. Armstrong explicitly takes this route: for him, the big totality fact is a negative existential.<sup>17, 18</sup> The obvious problem with this is that negative existentials are exactly what we are trying to ground: [The XXs total the things] ends up being equivalent to [There is no *y* that is not among the XXs]. So even if Armstrong succeeds in reducing the nonexistence of ghosts—indeed, reducing the nonexistences of all kinds of contingent beings—to one big negative existential, this only gets us *less* fundamental nonexistence, which means we still

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<sup>17</sup> Totality facts ‘involve negation—they could be called “no more” states of affairs’ (Armstrong 2010: 75). Note that I have ignored Armstrong’s distinction between ‘limits’ and ‘absences’. He uses ‘limit’ to refer to universal generalizations, ‘at most’ claims, and ‘no more’ claims (2010: 74–81). He reserves ‘absence’ for ‘there are no’ claims, i.e. negative existentials like ‘There are no unicorns’ (2010: 82–87). In my view, universal generalizations are sharply distinct from the others, since they aren’t negative existentials; they are grounded contingently in their instances, not zero-grounded. ‘At most’ facts, meanwhile, are paradigm negative existentials, with ‘There are no’ facts as a limiting case: [There are no Fs] = [There are at most zero Fs].

<sup>18</sup> Another option is that the totality fact is a universal generalization: [Every object *x* is among the XXs], where the XXs are all of the actual objects. As Fine (2012: §7) and Skiles (2015: §4.2) argue, this can’t work given Necessitation, since universal generalizations would themselves need to be grounded in their instances plus the totality fact. (The instances alone don’t necessitate.)

have one big case where we disrespect the ‘no extra work’ point and recombination.

A final possibility is that the ‘big fact’ isn’t the sum of ordinary positive facts, nor a normal negative, but instead *sui generis*: it is fundamental, positive, and yet powerful enough to exclude further positive facts. This proposal is ad hoc; it violates recombination; and it makes the totality fact count as ‘extra work’ when it ought to come for free. Still, I think this is the best option for anyone seeking grounds for nonexistence. We will revisit this view in §5.<sup>19</sup>

I conclude that there are real problems for the proposed grounds for nonexistence. We are therefore in a paradoxical pickle. Nonexistence has to be grounded, and yet nothing is fit to ground it. Now it is finally time to see if these claims could be reconciled.

### 3. Ex Nihilo, Nihil Fit

If nonexistence is ungrounded, then it takes more ontological work than it ought to, and invites illicit modal recombinations. But if we ground nonexistence in some facts, then we risk mistaking a failure of prevention for a success in creation, and we can’t hold on to the idea that grounding is a necessary relation (unless we go Necessitist, or find some way out of the Big Dilemma).

The only option left, it would seem, is that nonexistence is grounded in nothing. Can we make sense of this idea?

There is something intuitive about it. ‘Negative truths, many think, are not true because of

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<sup>19</sup> What about Schaffer and Cameron? Do their proposed grounds count as negative and yet necessitating? One formidable objection, due to Griffith (2012), is that these authors propose grounding negatives in properties that are *border-sensitive*, and intuitively, the instantiation of such properties is partly grounded in negative facts about what is going on outside of an object. Schaffer’s (2010: §IV) view is that [There are no ghosts] is true in virtue of the world’s being the unique fundament, which for him depends on the world’s being all there is, which is intuitively dependent on there not being more to it. Cameron’s (2008) view is that [There are no ghosts] depends on the existence of the world, which is *essentially* the biggest thing there is, but intuitively being the biggest depends on there not being further, larger things.

what there is but because of what there isn't' (Cameron 2018: 345). But Cameron warns against interpreting this claim in an ontological way, as grounding the negative in the existence of *lacks* or *absences*. To explain 'There are no Fs' in terms of 'a lack of Fs' is 'simply disingenuous when one doesn't believe in absences, or things that don't exist.... Better...to just come clean and say...that these claims are simply not grounded by anything!' (2018: 351). I agree.<sup>20</sup> 'Grounded in nothing' can't just mean a *negative* ground. We need grounding without *any* grounds.

The key, I think, is *zero-grounding*. Recall that, for Fine, 'being grounded in nothing' is ambiguous between being ungrounded and being zero-grounded. An ungrounded fact obtains without being grounded at all; it's fundamental. A zero-grounded fact is indeed grounded, but in zero-many facts. How does that work? What on earth is zero-grounding?

Fine's key analogy is with sets. The empty set is generated by the same process as impure sets, but while the impure sets come from certain urelements, the empty set comes *ex nihilo*.

Any non-empty set {a, b, ...} is generated (via the 'set-builder') from its members a, b, .... The empty set {} is also generated from its members, though in this case there is a zero number of members from which it is generated. An urelement such as Socrates, on the other hand, is ungenerated; there is no number of objects - not even a zero number - from which it may be generated. Thus 'generated from nothing' is ambiguous between being generated from a zero number of objects and there being nothing - not even a zero plurality of objects - from which it is generated; and the empty set will be generated from nothing in the one sense and an urelement from nothing in the other sense.

By analogy, a zero-grounded fact is grounded in zero-many facts, and a fundamental positive fact is not grounded at all.<sup>21</sup> If this makes sense, it's exactly what we wanted: nonexistence facts are no extra ontological work, but they're not grounded in anything.

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<sup>20</sup> Cameron raises his objection against Melia, whose view we saw in §2, above. For a similar objection, see Bennett (2011b: 188ff) and Griffith (2015: fn. 8), who object to Merricks' (2007: xii) proposal that negative existentials 'depend on the world' in a 'trivial' way, on the ground that Merricks doesn't explain the difference between substantive and trivial dependence.

<sup>21</sup> Fine (2012: 47–8) also leans on the metaphor of a 'machine' that manufactures sets; for more on the idea of sets as generated by a process, see Boolos 1971.

Still, the set analogy might not be enough. Can we say more about what zero-grounding is supposed to be? We might try other analogies. Here are two from Jonathan Schaffer.<sup>22</sup> First: initial causal conditions (uncaused) vs. *ex nihilo* causal outcomes (caused, but not by anything). The distinction is between events that come out of nowhere (a butterfly pops *ex nihilo* from the aether) vs. events that aren't effects at all, and simply lie at the start of a causal chain. The uncaused starting conditions are like the ungrounded fundamental level, and the *ex nihilo* outcomes are like the zero-grounded facts. Second: premises in a deductive argument (underived) vs. tautologies (derived, but not from anything). Premises 'follow from nothing' in the sense that they don't follow at all, but are simply written at the start. Tautologies follow in the sense that they are derived from the set of zero-many premises.<sup>23</sup>

So let's suppose that zero-grounding makes sense, and that [There are no ghosts] really is zero-grounded. We aren't done yet. For we face a tricky question. If nothingness suffices in our world to generate [There are no ghosts], why doesn't it *always* suffice? Think about the empty set: because it's generated from nothing, there's no way to stop it from existing; it exists at all possible worlds. Why shouldn't the same be true for [There are no ghosts]? Why isn't it necessarily true? The answer can't be that the grounds of [There are no ghosts] are present in one world but removed in the other. There were never any grounds to be taken away.

The key here, I think, is that grounds aren't the only facts that might be difference-makers. If grounding is contingent, then besides grounds, there might also be the presence and absence of

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<sup>22</sup> In 'Beyond Fundamentality', presented at Metaphysical Mayhem in 2017.

<sup>23</sup> In fact, this second analogy may be more than illustrative. If grounding involves a *metaphysical* kind of explanation, and explanations are *arguments*, we can distinguish grounds from zero-grounds in terms of zero- vs. many-premised *metaphysical arguments*. Jon Litland develops this idea *en route* to a rigorous account of zero-grounding: 'The seemingly mysterious distinction between being *ungrounded* and being *zero-grounded* is a special case of the familiar distinction between not being derivable and being derivable from the empty collection of premisses' (Litland 2017: 280, emphasis original).

*disabling conditions*—reasons why a certain would-be ground turned out not to be a ground in a certain case (Dancy 2004). For example, we might say [All ravens are black] is, when true, grounded contingently in facts like [Rae is black], where Rae is a raven (Skiles 2015). But there could be disablers of the form [Roy is white], where Roy is also a raven. Another example: [I promised to help] might fail to ground [I ought to help] if disabled by [My promise was made under duress] (Dancy 2004: Chapter 3).

Back to nonexistence: here is how disabling might help us. In our world, the generation of [There are no ghosts] from nothing goes through, but in other worlds, it's disabled by facts of the form [*x* is a ghost]. For example, if Casper is a ghost, then [Casper is a ghost] disables the zero-grounding of [There are no ghosts]. In our world, however, no one is a ghost, and so there are many *lacks of disablers*—such as [Ginger is a human]—which I earlier described as failures of prevention.<sup>24</sup>

So here is my solution. On pain of paradox, contingent nonexistence has to be grounded, but in nothing. Zero-grounding lets us ground facts in nothing, but seems unsuited for grounding contingent facts, since there would have to be an explanation for why the zero-grounding works in some cases but not in others, and clearly such an explanation can't come from variation in the ground. But we can explain this variation if we accept contingent grounding, giving up Necessitation. We can say that zero-grounding works by default but fails around disablers. The disablers of contingent negative existentials (like [There are no ghosts]) are counterinstances (like [Casper is a ghost]).

The core idea is that contingent negative existentials are contingently zero-grounded: they're

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<sup>24</sup> Why all this talk about lacks of disablers? What about *enablers*, i.e. reasons why some would-be ground was sufficient for the grounded fact? (Skow 2016: 109.) I am hesitant to say 'enabling' because I don't think there will always be enabling conditions for the zero-ground, in the sense of background conditions that, together with the ground, necessitate the grounded fact's obtaining. What fact could suffice for the totality fact besides the totality fact itself, or something that depends on it, like a big universal generalization?

grounded automatically but not inexorably. There are some subtly different ways we might get at this idea. We could say that negative existentials are grounded by default (Horty 2012, Lance & Little 2008), that they're grounded *ceteris absentibus* (Leuenberger 2008), or that they're true because they have no falsmakers (Lewis 2001). I will not consider these other possibilities, because I think the core idea can be put just fine in terms of contingent zero-grounding.<sup>25</sup>

#### 4. Generality and Internality

We have a new solution to our paradox of grounding nonexistence. What follows?

First, the contingent zero-ground account points us toward a fresh and general take on the numinous split between positive and negative. By default, positive facts don't obtain. They can only make it into reality with some ontological elbow grease: [There are ghosts] requires an instance of the form [*x* is a ghost], and [Rose is red] requires Rose to have the property of redness. But negative facts *obtain* by default, and it takes metaphysical muscle to strip them *out* of reality: [There are no ghosts] obtains unless there is a disabler of the form [*x* is a ghost], and [Rose is not red] obtains unless blocked by Rose's sanguine hues. For negative facts, obtaining is the default, and failure to obtain is the exception. For positive facts, the opposite is true. (Maybe this is behind our amazement that there is something rather than nothing.) This might not be the whole story for the positive/negative distinction.<sup>26</sup> But it is a nice clue.

Second, our account of nonexistence also meshes with another instance of contingent grounding. Skiles (2015) argues that accidental universal generalizations, like [All humans are under 150 years of age], are fully and contingently grounded in their instances. This view seems already

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<sup>25</sup> For Lewis (2001: 610), the basis for 'There are no ghosts' involves ghosts only at other possible worlds. My objection should be clear by now: I say the basis involves nothing, *period*.

<sup>26</sup> It might be that some zero-grounded facts are positive, e.g. the fact that I is numerically identical to myself (Schumener 2017: §3.3). If so, zero-groundedness doesn't guarantee negativity.



committed to contingent zero-ground. Consider how it would treat a universal generalization that is vacuously true, but only contingently so, like ‘All flying pigs are pink’. This truth corresponds to the following fact:  $[\forall x \in \{y: y \text{ is a flying pig}\}, x \text{ is pink}]$ , which will be contingently grounded its instances—which are zero in number! The fan of contingent ground, I suggest, should think of *all* generalizations as grounded (fully and exclusively) in their instances; the only thing that makes negative existentials special is that, like vacuously true universal generalizations, they don’t have any instances. Thus we have a unified way to ground general facts.

(Or rather: we have a promising idea. We won’t have a general account until we also have a view of which facts count as negative. No doubt a full view is out of reach for now, but why don’t we look at some key cases? Suppose  $[p]$  is positive and consider  $[\neg\neg p]$ . Is *that* a negative fact? Surely yes, if our test is ‘Does it have a negation?’ But perhaps no, if our test is ‘Does it obtain by default?’ Here, I think the thing to say is that negation *flips* polarity.  $[\varphi]$  is a positive fact *iff*  $[\neg\varphi]$  is negative. So  $[\neg\neg p]$  is positive; its negations cancel out. What about a contingent fact  $[p \ \& \ \neg q]$ , where  $[\neg q]$  is negative and  $[p]$  positive? This seems to me only partly negative. Next, consider general facts like [All cats meow], [Most dogs woof], and [Exactly one koala plays kazoo]. Are they positive or negative? These strike me as mixed polarity, too (assuming that the predicates involved are positive).<sup>27</sup> There are also interesting problems raised by nested and negated determiners. Facts with these aren’t always tricky: [Some cats love some dogs] is positive, and [No cat loves any dogs] is negative. But what about, say,  $[\neg\exists x\forall y.y = x]$ ? (Nothing is identical to everything—i.e. it’s not the case that there is exactly one thing?) What about [Something loves most things]? We don’t have any algorithm to say

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<sup>27</sup> But what grounds these facts? Briefly: (1) [There is exactly one F] is fully grounded in [There is at least one F], [There is at most one F]—the latter of which is negative and zero-grounded; (2) [At least half of Fs are G] is fully grounded in each set of instances, [a is F], [b is F], etc., where a, b, etc. are at least half of the Fs; this grounding is enabled by [a, b, ... are at least half of the Fs].

when a complex fact is positive or negative, and we don't have any useful ground-theoretic categories within the catchall of 'mixed polarity facts'. There remains a lot of work to be done.)<sup>28</sup>

Third, the contingent zero-ground account of nonexistence suggests an analogous view in the theory of truthmaking: perhaps <There are no ghosts> is contingently made true by zero-many things.<sup>29</sup> If so, we have an exception to *truthmaker maximalism*, the idea that all truths have a truthmaker. Some argue that it would be ad hoc to make exceptions for maximalism when it comes to negative existentials (Armstrong 2004: 70, Cameron 2008: 411, Dodd 2007: 394, Merricks 2007: 40-3, Saenz 2014: 83-4). While these arguments have weight, I believe that they work best against the view that <There are no ghosts> *isn't made true at all*. My conjecture is that this proposition *is* made true, but not *by* anything.<sup>30</sup>

Finally, and perhaps most interestingly, contingent zero-grounding falsifies another popular principle, beyond Necessitation:

### **Internality**

If a set of facts S grounds B, then it is necessary that if all the facts in S are the case and B is the case, then S grounds B.<sup>31</sup>

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<sup>28</sup> If 'positive' and 'negative' are too coarse for the distinctions we need, what properties should we call on? One hunch is that we might consider the *monotonicity* of the determiners involved in general facts (see Barwise and Cooper 1981: 184–7). Upward monotonicity is a clue that a fact is positive (as in 'Some Fs are G'); downward monotonicity suggests negativity (as in 'no Fs are G'); and no monotonicity suggests a mixture (as in 'Exactly two Fs are G').

<sup>29</sup> I assume, following Rodriguez-Pereyra (2006: 186), that truthmakers may be entities of any ontological type—object, property, state of affairs, fact, etc.—and that the entities made true are propositions. (Also, '<P>' refers to the proposition that *P*.)

<sup>30</sup> Let me give a quick objection to Griffith's (2015) ingenious account, on which the truthmakers for a negative existential are (roughly) the actual things that *could have* made it false. Griffith's view leaves some negative truths without truthmakers. Consider <There exists nothing made from ectoplasm>. Nothing actual could have made this false, because no actual things could have been made from ectoplasm (since the material objects have their non-ectoplasmic origins essentially, and the nonmaterial objects are essentially nonmaterial). Another counterexample is <There is no stuff causally isolated from A>, where A is all of the actual stuff.

<sup>31</sup> Internality is endorsed in Bennett 2011a, Rosen 2010, Audi 2012, and Bernstein 2016. Leuenberger (2014), Litland (2015), and Baron-Schmitt (ms.) give counterexamples very unlike the example I am about to give, which I owe to Jon Litland.

The idea here is that, given the presence of the grounded fact, grounds always *necessitate that they are the grounds*. Internality is consistent with the examples we've seen, but consider  $B = [(There\ are\ no\ ghosts) \vee (there\ are\ flying\ pigs)]$ . This fact is actually contingently zero-grounded. But in another world  $v$ , where there *are* ghosts and flying pigs,  $B$  is grounded in  $[There\ are\ flying\ pigs]$ . So,  $B$  and the zero-ground are not enough to necessitate that  $B$  is zero-grounded. They are present at  $v$ , but there, the ground is positive and porcine.

## 5. Incompleteness

If nonexistence is contingently zero-grounded, as I have argued, then grounding cannot be an internal relation. I conclude with another, even more radical consequence.

Our account of nonexistence entails the incompleteness of the fundamental: the fundamental facts don't necessitate the rest.<sup>32</sup> No set of facts can be complete without fixing the limits of what there is—it's not enough to say what is there and what it's like, unless we can ensure that *there is nothing else*. But 'There is nothing else' is a contingent, zero-grounded negative existential—it's not fundamental, and isn't necessitated by anything that is. That makes the fundamental level incomplete. Not all facts flow from it, because it doesn't include its own limits.

Possible objection: this is a disaster. Completeness is as plausible as it gets when it comes to principles of grounding. Reject it, and your view doesn't just sound false, if not inscrutable. Any respectable conception of fundamentality needs its basic level to be complete.

My response: completeness is good and true in one sense, false and undesirable in another. The completeness principle—that the totality of facts is necessitated by the fundamental facts—is really ambiguous between these:

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<sup>32</sup> This isn't the only way to use 'completeness', but it is a perfectly familiar use; see Sider 2011: Chapter 7.

**Completeness (*de re*)**

The set of fundamental facts S is such that all the actual facts are necessitated by S.

**Completeness (*de dicto*)**

All actual facts are necessitated by the set of fundamental facts—i.e. by *what's fundamental*.

The difference is crucial. The fundamental facts are complete *de dicto* if there can't be a change in total facts without a change in *what the fundamental facts are*. Completeness *de re* says instead that, if S is the set of fundamental facts, there can't be a change in total facts from the actual world without a change in S—*those particular facts*.

In my view, the fundamental facts are not complete *de re*. There is a possible world  $w^+$  where all the actual fundamental facts are present (and fundamental) along with *new* fundamental facts—extra quarks, bonus events, alien properties, etc. (A way to think about this:  $w^+$  has a duplicate of the actual world as a proper part.) That much is entailed by two plausible ideas: that all fundamental facts are positive, and that no set of positive facts can rule out there being further positive things. But notice that  $w^+$  is *not* a problem for completeness *de dicto*. The actual world and  $w^+$  are the same when it comes to the *actual* fundamental facts (all present at both), but there is a change in *which* facts are fundamental ( $w^+$  has extras).

So I suggest that the fundamental level is incomplete only *de re*, and that this shouldn't trouble us. It would be a disaster if we had to say that the basic facts are incomplete *de dicto*—but we don't, so we are safe.

Still, isn't there something deeply right about *de re* completeness? Don't we think that *some* elite set of the facts has got to fix the others? Sure. But it's not the ungrounded facts alone: it's them *plus* the zero-grounded facts. Even we can embrace the truer, weaker *de re* principle:

**Weak Completeness (*de re*)**

The set of fundamental or zero-grounded facts  $S^+$  is such that all the actual facts are necessitated by  $S^+$ .

In other words: if  $S^+$  is the union of the set of fundamental facts and the set of zero-grounded facts,

then there can be no world can differ from the actual world unless it differs in respect of some fact in S+. Sounds about right to me. Any world with the same limits and contents as ours has to be numerically the same.<sup>33</sup>

By now, I hope, incompleteness won't seem so unthinkable. If we think some negative existentials are contingently zero-grounded, we do have to give up (strong) completeness *de re*, but we can accept its *de dicto* cousin and weakened counterpart. How much more completeness do we really need? 'Yet more', I can imagine some philosophers saying. 'Disambiguate as much as you want: I know exactly which principle I can't live without, and it's completeness *de re*. I believe it come what may—and I accept no substitutes.'

I don't have any objection to this position, except what I have said already: we need incompleteness *de re* to get contingent zero-ground, and we need contingent zero-ground to solve our paradox. But a friend of completeness could struggle through the paradox some other way. Perhaps the best option: take the totality fact to be *sui generis* and fundamental, then deny that it can be freely modally recombined with the (other) positive facts. The deep choice, then, is between recombination and completeness. And this reflects an even deeper choice between two pictures of the fundamental. Are the fundamental facts the ones that *fully and elegantly account for* the rest? (In Lewis's (1986) phrase, do they account for everything 'completely and without redundancy'? See also Wilson 2012: 1.) If so, then completeness *de re* is a must. But there is another picture that privileges recombination—*fundamentality as independence*. The idea here is that no fundamental fact depends on anything else; that is why we are free to remove one, without replacement, and make ourselves a new possible world. Depending on which picture we prefer, we will take negative existentials as either zero-grounded or grounded in totality.

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<sup>33</sup> Why reject weak completeness *de re*? Perhaps to keep robust emergence (Wilson 2014: 544).

So my argument is itself, in a way, incomplete. By zero-grounding negative existentials, I've tried to reconcile three ideas: (1) that the fundamental facts can recombine; (2) that the fundamental positive facts can't recombine with negative existentials; and (3) that negative existentials have no grounds. The resulting view rules out completeness (in its strong *de re* form). But while, as I've argued, this conclusion may be less radical than it sounds, still you might reject it, simply by insisting that completeness is a fixed point, and recombination isn't. Stalemate.<sup>34</sup>

All that being said, I hope to have made progress by showing how completeness *could* well be false: perhaps the way the world is depends not just on its fundamental filling, but also on its zero-grounded boundaries. No story is complete without 'The End'—but is 'The End' itself really part of the story?<sup>35</sup>

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<sup>34</sup> Though I still have the 'no extra work' intuition on my side—and the problem of free mass against me (see fn. 6, above).

<sup>35</sup> This paper began as I was leaving UT Austin for MIT, and I have been receiving helpful comments ever since. My warmest thanks to David Balcarras, Bernhard Salow, Jack Spencer, Steve Yablo, Brad Skow, Jon Litland, Agustín Rayo, Alex Skiles, Josh Dever, David Sosa, Galen Strawson, Ross Cameron, Karen Bennett, Daniel Stoljar, Ted Sider, Amie Thomasson, Damian Melamedoff, Kat Hintikka, Jonah Nagashima, Ginger Schultheis, Quinn White, Eddy Chen, Jonathan Dancy, an extraordinarily helpful referee at *Inquiry* (whose comments improved the introduction, framing, and arguments), and audiences at the Australasian Association of Philosophy Conference and MIT's MATTI reading group. Sincere apologies to anyone I have left out. This project began with indispensable help from the Rapoport-King Thesis Scholarship; I owe special thanks to Robert D. King and Audre and Bernard Rapoport. Finally, I would like to thank Nathaniel Baron-Schmitt for his invaluable insights and encouragement over the years; without him, this paper would likely have been boring—or worse: nonexistent.

## REFERENCES

- Altmann, S.A., 1967. Structure of social communication. In S.A. Altmann (ed.), *Social Communication Among Primates*, 325–362. Chicago: University of Chicago Press.
- Armstrong, D. M., 1997. *A World of States of Affairs*. Cambridge: Cambridge University Press.
- 2004. *Truth and Truthmakers*. Cambridge: Cambridge University Press.
- 2006. Reply to Cheyne and Pigden. *Australasian Journal of Philosophy* 84 (2): 267–268.
- 2010. *Sketch for a Systematic Metaphysics*. Cambridge: Cambridge University Press.
- Asay, J., and Baron, S., 2013. Unstable truthmaking. *Thought* 1: 230–238.
- Audi, P., 2012a. A clarification and defense of the notion of grounding. In Correia and Schneider 2012: 101–121.
- Audi, P., 2012b. Grounding: toward a theory of the in-virtue-of relation. *Journal of Philosophy* 109: 685–711.
- Bader, R., 2016. Conditions, modifiers, and holism. In Lord and Maguire 2016: 27–55.
- Baldwin, T., 1996. There might be nothing. *Analysis* 56: 231–238.
- Barceló Aspeitia, A.A., 2015. Making quantified truths true. In Torza A. (ed), *Quantifiers, Quantifiers, and Quantifiers: Themes in Logic, Metaphysics, and Language*. Synthese Library (Studies in Epistemology, Logic, Methodology, and Philosophy of Science), vol 373. Springer, Cham.
- Baron-Schmitt, N., ms. Contingent grounding.
- Barwise, J. and Cooper, R., 1981. Generalized quantifiers and natural language. *Linguistics and Philosophy* 4: 159–219.
- Beall, J.C., 2000. Truthmakers for negative truths. *Australasian Journal of Philosophy* 78 (2): 264–268.
- Bennett, K., 2011a. By our bootstraps. *Philosophical Perspectives* 25 (1): 27–41.
- 2011b. Truthmaking and case-making. *Philosophy and Phenomenological Research* 83 (1):187–195.
- 2017. *Making Things Up*. Oxford: Oxford University Press.

- Bernstein, S., 2016. Grounding is not causation, *Philosophical Perspectives* 30: 21-38.
- Bliss, R. and Trogon, K., 2014. Metaphysical grounding. *The Stanford Encyclopedia of Philosophy*. (Winter 2016 Edition), Edward N. Zalta (ed.), URL = [<https://plato.stanford.edu/archives/win2016/entries/grounding/>](https://plato.stanford.edu/archives/win2016/entries/grounding/).
- Boolos, G., 1971. The iterative conception of set. *Journal of Philosophy* 68 (8): 215-231.
- Braun, D. 1993. Empty names. *Noûs* 27 (4): 449–469.
- Briggs, R., 2012. Truthmaking without necessitation. *Synthese* 189 (1):11–28.
- Cameron, R. P., 2008. How to be a truthmaker maximalist. *Noûs* 42 (3): 410–21.
- 2018. Truthmakers. In Michael Glanzberg (ed.), *The Oxford Handbook of Truth*. Oxford: Oxford University Press.
- Chalmers, D., 2012. *Constructing the World*. Oxford: Oxford University Press.
- Cheyne, C. and Pigden, C., 2006. Negative truths from positive facts. *Australasian Journal of Philosophy*, 84: 249–265.
- Chudnoff, E., ms. Grounding and entailment. Unpublished.
- Coggins, G., 2010. *Could There Have Been Nothing? Against Metaphysical Nihilism*. London: Palgrave Macmillan.
- Correia, F., 2005. *Existential Dependence and Cognate Notions*. Munich: Philosophia.
- Correia, F. and Schnieder, B. (eds.), 2012. *Metaphysical Grounding: Understanding the Structure of Reality*. Cambridge: Cambridge University Press.
- Dancy, J., 1981. On moral properties. *Mind* 90 (359): 367-385.
- 2004. *Ethics Without Principles*. Oxford: Oxford University Press.
- Dasgupta, S., 2014. The possibility of physicalism. *Journal of Philosophy* 111 (9/10): 557–592.
- deRosset, L., 2010. Getting priority straight. *Philosophical Studies* 149: 73–97.
- Donaldson, T., 2017. The (metaphysical) foundations of arithmetic. *Noûs* 51 (4): 775–801.



- Fine, K., 2012. Guide to ground. In Correia and Schneider 2012: 37–80.
- Gillon, B. S., 1999. Negative facts in classical Indian philosophy. *The Concise Routledge Encyclopedia of Philosophy*. Eds., Craig, E. and Craig, E. London: Routledge.
- Goodman, J., 2016. An argument for necessitism. *Philosophical Perspectives* 30 (1): 160–182.
- Griffith, A.M., 2012. On some alleged truthmakers for negatives. *Thought: A Journal of Philosophy* 1 (4): 301–308.
- 2015. How negative truths are made true. *Synthese* 192 (1): 317–335.
- Horn, L., 2001. *A Natural History of Negation*. Chicago: Chicago University Press.
- Horty, J., 2012. *Reasons as Defaults*. Oxford: Oxford University Press.
- Lance, M. & Little, M., 2007. Where the laws are. *Oxford Studies in Metaethics* 2: 149–171.
- Leuenberger, S., 2008. *Ceteris absentibus* physicalism. In D. W. Zimmerman (ed.), *Oxford Studies in Metaphysics*. Oxford University Press 4–145.
- 2014. Grounding and necessity. *Inquiry* 57 (2): 151–174.
- Lewis, D., 1986. *On the Plurality of Worlds*. Wiley-Blackwell.
- 2001. Truthmaking and difference-making. *Noûs* 35 (4): 602–615.
- Linsky, B. and Zalta, E., 1994. In defense of the simplest quantified modal logic. *Philosophical Perspectives* 8: 431–458.
- 1996. In defense of the contingently nonconcrete. *Philosophical Studies* 84 (2–3): 283–294.
- Litland, Jon 2015. Grounding, explanation, and the limit of internality. *Philosophical Review*, 124(4): 481-533.
- 2017. Grounding ground. *Oxford Studies in Metaphysics, Volume 10*, eds. Karen Bennett and Dean Zimmerman: 279–316.
- Lord, E. and Maguire, B. (eds.), 2016. *Weighing Reasons*. Oxford: Oxford University Press.
- Loss, R., 2017. Grounding, contingency, and transitivity. *Ratio* 30 (1): 1–14.

- MacBride, F., 2016. Truthmakers. *The Stanford Encyclopedia of Philosophy* (Spring 2016 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2016/entries/truthmakers/>.
- Macdonald, C., 1998. Tropes and other things. In S. Laurence and C. Macdonald (eds.), *Contemporary Readings in the Foundations of Metaphysics*, 329–350. Oxford: Basil Blackwell.
- Molnar, G., 2000. Truth-makers for negative truths. *Australasian Journal of Philosophy*, 78: 72–85.
- Oesterle, J., ed. and trans. 1962. *Aristotle: On Interpretation. Commentary by Saint Thomas and Cajetan*. Milwaukee: Marquette University Press.
- Parsons, J., 2006. Negative truths from positive facts? *Australasian Journal of Philosophy* 84 (4): 591–602.
- Randle, H.N., 1930. *Indian Logic in the Early Schools*. London: Oxford University Press.
- Raju, P.T., 1941. The reality of negation. *Philosophical Review* 50 (6): 585–601.
- Rodriguez-Pereyra, G., 2006. Truthmakers. *Philosophy Compass* 1 (2): 186–200.
- Rosen, G., 2010. Metaphysical dependence: grounding and reduction. In B. Hale & A. Hoffmann (eds.), *Modality: Metaphysics, Logic, and Epistemology*, 109–36. Oxford: Oxford University Press.
- Russell, B., 1918. *The Philosophy of Logical Atomism*. Reprinted in 1998. Peru: Open Court Publishing. Originally printed 1918–1919 in *The Monist* 28: 495–527; 29: 190–222, 345–380.
- 1956. *Logic and Knowledge*, R. C. Marsh (ed.). London: George Allen & Unwin.
- Saenz, N. B., 2014. The world and truth about what is not. *Philosophical Quarterly* 64 (254):82–98.
- Sartorio, C., 2004. How to be responsible for something without causing it. *Philosophical Perspectives* 18: 315–336.
- Schaffer, J., 2003. The problem of free mass: must properties cluster? *Philosophy and Phenomenological Research* 66 (1): 125–138.
- 2004. Two conceptions of sparse properties. *Pacific Philosophical Quarterly* 85: 92–102.

- 2009. On what grounds what. In David Manley, David J. Chalmers & Ryan Wasserman (eds.), *Metametaphysics: New Essays on the Foundations of Ontology*, 347–383. Oxford: Oxford University Press.
- 2010. The least discerning and most promiscuous truth-maker. *Philosophical Quarterly*, 60: 307–24.
- Schumener, E., 2017. The metaphysics of identity: is identity fundamental? *Philosophy Compass*.
- Sider, T., 2011. *Writing the Book of the World*. Oxford University Press.
- Skiles, A., 2015. Against grounding necessitarianism. *Erkenntnis* 80 (4):717–751.
- Skow, B., 2016. *Reasons Why*. Oxford: Oxford University Press.
- Williamson, T., 2013. *Modal Logic as Metaphysics*. Oxford: Oxford University Press.
- Wilson, J., 2012. Fundamental determinables. *Philosophers' Imprint* 12 (4).
- 2014. No work for a theory of grounding. *Inquiry: An Interdisciplinary Journal of Philosophy* 57: 5–6, 535–579.
- Witmer, G., Butchard, W., and Trogon, K., 2005. Intrinsicity without natural-ness. *Philosophy and Phenomenological Research* 70: 326–350.
- Yablo, S., 2004. Advertisement for a sketch of an outline of a proto-theory of causation. In Ned Hall, L. A. Paul & John Collins (eds.), *Causation and Counterfactuals*. Cambridge, Mass.: MIT Press 119–137.
- ms. What 'X does not exist' says about we who do exist. Unpublished. URL = [https://www.academia.edu/38017185/WHAT\\_X\\_DOES\\_NOT\\_EXIST\\_SAYS\\_ABOUT\\_WE\\_WHO\\_DO\\_EXIST](https://www.academia.edu/38017185/WHAT_X_DOES_NOT_EXIST_SAYS_ABOUT_WE_WHO_DO_EXIST).